IN THE CLAIMS

Page 21, change "Patent Claims" to --What is claimed is--.

Cancel claims 1-20 and add new claims 21-71, reading as follows:

--21. (New) A method for increasing the depth discrimination of optically imaging systems comprising the steps of:

projecting a periodic structure in the object;

detecting N, N>=3 structured images of the object with phase angles $\varphi_n = n\frac{2\pi}{N}$, $n = 0..N-1$ of the projected structure; and

generating optical sections by evaluation of the images with the N different phase angles by Equation 5b.

22. (New) A method for increasing the depth discrimination of optically imaging systems comprising the steps of:

projecting a periodic structure in the object;

detecting three structured images of the object with the three phase angles 0°, 120°, 240° of the projected structure; and

generating optical sections by evaluation of the three images with different phases by Equation 10.

23. (New) A method for increasing the depth discrimination of optically imaging systems comprising the steps of:

projecting a periodic structure in the object;

detecting four structured images of the object with the four phase angles 0°, 90°, 180°, 270° of the projected structure; and

generating optical sections by evaluation of the four images with different phases by Equation 11.

24. (New) A method for increasing the depth discrimination of optically imaging systems comprising the steps of:

projecting a periodic structure in the object;

detecting N, N>=3 structured images of the object with phase angles $\varphi_n = n\frac{2\pi}{N}$, $n = 0..N-1$ of the projected structure; and

calculating structure-free images by Equation 7, wherein the image of the object calculated in this way does not have increased depth discrimination.

25. (New) A method for increasing the depth discrimination of optically imaging systems comprising the steps of:

projecting a periodic structure in the object;

detecting two structured images of the object with phase angles of 0° and 180°; and

calculating a synthetic image by Equation 12c, wherein the image of the object calculated in this way does not have increased depth discrimination.

26. (New) A method for increasing the depth discrimination of optically imaging systems comprising the steps of:

projecting a periodic structure in the object;

detecting four structured images of the object with phase angles of 0°, 90°, 180°, 270°; and

calculating a synthetic image by Equation 7, wherein the image of the object calculated in this way does not have increased depth discrimination.

27. (New) A method for increasing the depth discrimination of optically imaging systems comprising the steps of:

projecting a periodic structure in the object;

detecting three structured images of the object with phase angles of 0°, 120° and 240°; and

calculating a synthetic image by Equation 12a, wherein the image of the object calculated in this way does not have increased depth discrimination.

28. (New) A method for increasing the depth discrimination of optically imaging systems comprising the steps of:

projecting a periodic structure in the object;

detecting four structured images of the object with phase angles of 0°, 90°, 180°, 270°; and

calculating a synthetic image by Equation 12b, wherein the image of the object calculated in this way does not have increased depth discrimination.

29. (New) The method of claim 21 including using said method in all linear interactions.

30. (New) The method of claim 21 including using said method in microscopy.

31. (New) The method of claim 21 including using said method in incident light microscopy.

32. (New) The method of claim 21 including use in incident brightfield microscopy.

33. (New) The method of claim 21 including use in transmitted light microscopy.

34. (New) The method of claim 21 including use in incident fluorescence microscopy.

35. (New) An arrangement for increasing the depth discrimination of optically imaging systems comprising:

means for projecting a periodic structure in the object;

means for detecting N, N>=3 structured images of the object with phase angles $\varphi_n = n\frac{2\pi}{N}$, $n = 0..N-1$ of the projected structure; and

means for generating optical sections by evaluation of the images with the N different phase angles by Equation 5b.

36. (New) An arrangement for increasing the depth discrimination of optically imaging systems comprising:

means for projecting a periodic structure in the object;

means for detecting three structured images of the object with the three phase angles 0°, 120°, 240° of the projected structure; and

means for generating optical sections by evaluation of the three images with different phases by Equation 10.

37. (New) An arrangement for increasing the depth discrimination of optically imaging systems comprising:

means for projecting a periodic structure in the object;

means for detecting four structured images of the object with the four phase angles 0°, 90°, 180°, 270° of the projected structure; and

means for generating optical sections by evaluation of the four images with different phases by Equation 11.

38. (New) An arrangement for increasing the depth discrimination of optically imaging systems comprising:

means for projecting a periodic structure in the object;

means for detecting N, N>=3 structured images of the object with phase angles $\varphi_n = n\frac{2\pi}{N}$, $n = 0..N-1$ of the projected structure; and

means for calculating structure-free images by Equation 7, wherein the image of the object calculated in this way does not have increased depth discrimination.

39. (New) An arrangement for increasing the depth discrimination of optically imaging systems comprising:

means for projecting a periodic structure in the object;

means for detecting two structured images of the object with phase angles of 0° and 180°; and

means for calculating a synthetic image by Equation 12c; wherein the image of the object calculated in this way does not have increased depth discrimination.

40. (New) An arrangement for increasing the depth discrimination of optically imaging systems comprising:

means for projecting a periodic structure in the object;

means for detecting four structured images of the object with phase angles of 0°, 90°, 180°, 270°; and

means for calculating a synthetic image by Equation 7, wherein the image of the object calculated in this way does not have increased depth discrimination.

41. (New) An arrangement for increasing the depth discrimination of optically imaging systems comprising:

means for projecting a periodic structure in the object;

means for detecting three structured images of the object with phase angles of 0°, 120° and 240°; and

means for calculating a synthetic image by Equation 12a, wherein the image of the object calculated in this way does not have increased depth discrimination.

42. (New) An arrangement for increasing the depth discrimination of optically imaging systems comprising:

means for projecting a periodic structure in the object;

means for detecting four structured images of the object with phase angles of 0°, 90°, 180°, 270°; and

means for calculating a synthetic image by Equation 12b, wherein the image of the object calculated in this way does not have increased depth discrimination.

43. (New) The arrangement for increasing the depth discrimination of optically imaging systems according to claim 35, wherein the spatial phase of the projected structure is adjusted by a plane-parallel plate which is rotatable about an axis perpendicular to the optical axis.

44. (New) The arrangement according to claim 35, wherein the spatial phase is adjusted by a galvanometer scanner.

45. (New) The arrangement according to claim 35, wherein the structure can be move in axial direction in addition.

46. (New) The arrangement according to claim 35, wherein the illumination-side tube lens can be moved in axial direction in addition.

47. (New). The arrangement according to claim 45 with motor-actuated movement.

48. (New). The arrangement according to claim 46 with motor-actuated movement.

49. (New) The arrangement according to claim 47 with motor-actuated movement corresponding to Figures 7a, 7b.

50. (New) The arrangement according to claim 47 with motor-actuated movement of an optical wedge corresponding to Figure 9.

51. (New) The arrangement according to claim 35 in combination with the measurement of the light intensity by a light-sensitive detector.

52. (New) The arrangement according to claim 51 in combination with the measurement of the light intensity by a light-sensitive detector, wherein a photodiode is used as light-sensitive detector.

53. (New). The arrangement according to claim 51, wherein the digitized signal of the light-sensitive detector is used for scaling the image brightness.

54. (New) The arrangement according to claim 53, wherein the digitized signal of the light-sensitive detector is used for scaling the image brightness using Equation 17.

55. (New) The arrangement according to claim 35, wherein the calculation of depth-discriminated images is obtained by solving the system of equations given by Equations 20, 21 and 22.

56. (New) The arrangement according to claim 35 also including use of an automatic shutter.

57. (New) The arrangement according to claim 35 also including use of a shutter according to Figure 5.

58. (New) The arrangement according to claim 35 also including minimizing artifacts through the use of averaging according to Equation 24.

59. (New) The arrangement according to claim 35 also including implementation of a module with two positions according to Figure 8.

60. (New) The arrangement according to claim 35 also including the coding of the grating with a bar code for automatic detection of the grating.

61. (New) The arrangement according to claim 35 also including the coding of the grating with a stripe code for automatic detection of the grating.

62. (New) The arrangement according to claim 35 also including exchangeable gratings.

63. (New) The arrangement according to claim 62 wherein the illumination-side tube lens is moved in axial direction in addition.

64. (New) The arrangement according to claim 63 with motor-actuated movement.